

Work Order ID 135564

135564

Page 1

Item ID: D119-796-141

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 8/12/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 8/12/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: MLJ Date: SEP 02 2015

Tooling:

Date:

Run Start ***NR1***

QC: 24.0 Date: 24.0 SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D119-796-141	<u>8 H A.P.</u> <u>15-11-25</u>

110	Document Control	0.00
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110

DC	Memo	0.00
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Doc.Control -USB or Paperwork Photocopy bluefile and create labels as per PPP D119-796-141 chg 003

N/A MLJ JAN 14 2016

120	Packaging	0.00
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120

Packaging	Memo	0.00
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Packaging

TH 15/10/06

130	BENDING MACHINE - CROSSTUBES	0.00
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130

CNC Bend 2	Memo	0.05
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CNC Alpha 160 Bender Bend tube as per Dwg D119-796-141 using CNC bender program

BC 15/10/06

DQA:

Date:

16/02/09

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

Date:

16/02/09

Work Order update only ☐

Work Order: <u>135564</u> Part No. <u>D119-786-141</u> NCR No. <u>16-5581</u>		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:12.5%;">Skid-tube</td><td>☐</td> <td style="width:12.5%;">Cross tube</td><td>☐</td> <td style="width:12.5%;">Water Jet</td><td>☐</td> <td style="width:12.5%;">Engineering</td><td>☒</td> </tr> <tr> <td>Machining</td><td>☐</td> <td>Small Fab</td><td>☐</td> <td>Prod. Eng. Coord.</td><td>☐</td> <td>Quality</td><td>☐</td> </tr> <tr> <td>Thermoforming</td><td>☐</td> <td>Finishing</td><td>☐</td> <td>Rec/Store/Packaging</td><td>☐</td> <td>Other</td><td>☐</td> </tr> <tr> <td>Large Fab</td><td>☐</td> <td>Composite</td><td>☐</td> <td>Supplier</td><td>☐</td> <td></td><td></td> </tr> </table>						Skid-tube	☐	Cross tube	☐	Water Jet	☐	Engineering	☒	Machining	☐	Small Fab	☐	Prod. Eng. Coord.	☐	Quality	☐	Thermoforming	☐	Finishing	☐	Rec/Store/Packaging	☐	Other	☐	Large Fab	☐	Composite	☐	Supplier	☐																																																																																																				
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Work Order ID 135564

Wednesday, September 02, 2015 9:13:34 AM

135564

Page 2

Item ID: D119-796-141

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 8/12/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 8/12/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

NR1

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC15- Crosstube Dimensional Check	0.00				1	0		DAS 47 9-89
140									
QC	Memo	0.00							
Quality Control									
								15-10-06	
145		0.00							
145									
Crosstubes	Memo	0.00							
Crosstubes	1- CUT TUBE AT HEIGHT ON FAI SHEET								
	2- VERFY HEIGHT: 21.625								
	BY QC15 LEVEL INSPECTOR: <u>mmk</u>								
	3- DEBURR CUT SURFACE								

BSL 15/10/06

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
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LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐								
		OTHER : _____							

Work Order ID 135564

Wednesday, September 02, 2015 9:13:34 AM

135564

Page 3

Item ID: D119-796-141

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: FWD Crosstube Installation without Step (no hardware)

Stop ***NS2***Start Date: 8/12/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 8/12/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

0.00

150

Crosstubes

Crosstubes

Memo

0.06

***** ENSURE PROPER JIG POSITIONING *****

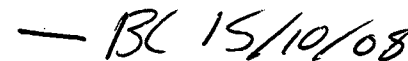
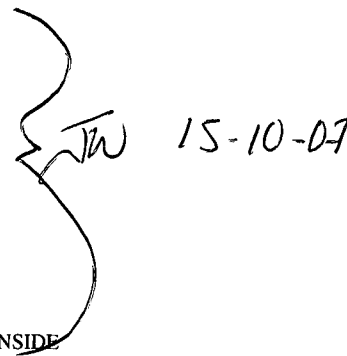
***** ENSURE PROPER JIG POSITIONING *****

1-DRILL TUBE AS PER DWG USING DT _____

2- DRILL RIVET HOLES USING DT8787 FWD

3- DEBURR AND C'SINK RIVET HOLES AS PER DWG

4- FLIP TUBE, REPEAT STEP 2 AND 3

5- SCRIBE PART# AND BATCH# USING VIBRATING STYLUS ON INSIDE
OF CUFF AS PER DWG D119-796-1416- INSPECT AND REMOVE ALL MARKS FROM TUBE WITHIN LIMITS
ON DWG D119-796-141

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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135564

Page 4

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N900040100

Setup Start *NS1*

Stop *NS2*

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Cust Item ID:

Required Date: 8/12/2015 **Req'd Qty:** 1.00 ***1***

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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

0.00

160

0.00

HandFXtube

Hand Finishing Crosstubes

Memo

IMMEDIATELY AFTER GRINDING

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER OSI005.

170

QC5- Inspect part completeness to step on W/O

0.00

170

0.00

OC

Memo

Quality Control

DAS
38
9-89

OCT 08 2015

175

QC7-Inspect Chemical Conversion Coat

0.00

175

0.00

QC

Memo

Quality Control

DAS
38
~~9-89~~

OCT 08 2015

DQA: _____ Date: _____



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Revision ID: Stop ***NS2***
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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00							
180									
Outsource2	Memo	2.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>30083</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190	Packaging	0.00							
190									
Packaging	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
200									
QC	Memo	0.00							
Quality Control	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D119-796-141								

CL OCT 13 2015 /

/ OCT 13 2015 DAS 6 9-89

1 DAS 38 9-89

OCT 13 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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		OTHER : _____																																																																			

Wednesday, September 02, 2015 9:13:34 AM

Item ID: D119-796-141

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: FWD Crosstube Installation without Step (no hardware)

Stop *NS2*

Start Date: 8/12/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 8/12/2015 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** **Tooling:** **Date:**

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Misidentified ☐	Past Due ☐																																																																

Work Order ID 135564

Wednesday, September 02, 2015 9:13:34 AM

135564

Page 7

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: FWD Crosstube Installation without Step (no hardware)
 Start Date: 8/12/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 8/12/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
242		0.00							DAS 41 9-89
242						1			
Crosstubes	Memo	0.02							15-10-23
Crosstubes	1- Abrade mating surfaces of support and crosstube with Scotch Brite 7447, clean the area with dupont 4105s or equivalent as per dwg								
	2- Install D5152-041 with proseal 890 on concave surface, 0.100" MIN thick as per dwg using DT10089(identified right and left)								
	LEAVE CLAMPING PRESSURE ON FOR MIN 48HRS**								
	Proseal Batch: <u>133071</u>								
	EXP: <u>2/16</u>								
	PROSEAL CURE TIME 72 HOURS:								
	Start: <u>15-10-23</u>								
	Finish: <u>15-10-26</u>								
	3- Install radius block as per dwg								
	4- Mask underside of crosstube as shown as per dwg prior to painting.								
244	QC5- Inspect part completeness to step on W/O	0.00							DAS 38 9-89
244						1			
QC	Memo	0.00							15-10-23
Quality Control									15-10-26

15-10-23

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Wednesday, September 02, 2015 9:13:34 AM

Item ID: D119-796-141

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: FWD Crosstube Installation without Step (no hardware)

Stop *NS2*

Start Date: 8/12/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 8/12/2015 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
		OTHER : ☐							

Work Order ID 135564

Wednesday, September 02, 2015 9:13:34 AM

135564

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Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 8/12/2015 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 8/12/2015 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	Crosstubes	0.00				1			DAS 41 9.88
250									16-1-5
Crosstubes	Memo	0.02							*
Crosstubes	Assemble as per Dwg D119-796-141								
	1- Abrade mating surfaces of support and crosstube with Scotch brite 7447 red, clean the area with Dupont 4105s or equivalent as per dwg								
	2- Install supports, clamp with the proper position with Proseal 890 per dwg D119-796-141 and QSI 015								
	A/R Proseal 890 Batch: <u>133532</u>								
	EXP: <u>2/16</u>								
	PROSEAL CURE TIME 72 HOURS:								
	Start: <u>16-1-5</u>								
	Finish: <u>16-1-8</u>								

Torque all clamps to 80-100 IN-LBS.

PTO
First Page

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
		OTHER : ☐							

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
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Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
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Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

Wednesday, September 02, 2015 9:13:39 AM

Page 1

Work Order ID: 135564

135564

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 8/12/2015

Required Date: 8/12/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.03 NEW ISSUE DD VERF:JLM IPP
REV:B 14.10.15 AS PER REV.B DD VERF:JLM IPP REV:C
14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12
AS PER REV.pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER
REV F JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D119-796-141TRN		Manufactured	No				Each	4.0000		(1)			
D119-796-141TRN									**				
Crosstube Turning Detail													

Location	Loc Qty	Loc Code
LG014	4	
131846	1	
131847	1	
131848	1	
131849	1	

D2873-043		Manufactured	No				Each	59.0000		4			
D2873-043									**				
Nut Plate Assembly													

Location	Loc Qty	Loc Code
LG050	59	
133401	59	

D5123-3		Manufactured	No				Each	89.0000		4			
D5123-3									**				
Clamp Cushion													

Location	Loc Qty	Loc Code
LG055	71	
133959	30	
135511	41	
lg55	18	
126747	12	
127133	6	

JW 15-10-06

DAS
41
9-89 15-10-21

16-1-5

3
1

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval				
Description Work Order Deviation				Disposition							
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter		☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes		☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center		☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence	
				OTHER :							

Picklist Print

Wednesday, September 02, 2015 9:13:39 AM

Page 2

Work Order ID: 135564

135564

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 8/12/2015

Required Date: 8/12/2015

Start Qty: 1.00

Required Qty: 1.00

D5124-1 Manufactured No

Each 10.0000

2

D5124-1

**

DAS
41
9-89

16-1-5

Fwd Support

Location

135354

Loc Qty

Loc Code

2

LG055

10

131328

10

D5152-041

Manufactured No

Each

7.0000

2

D5152-041

**

DAS
41
9-89

15-10-23

Fwd Post Mount Assembly

Location

137292

Loc Qty

Loc Code

2

LG054

1

131108

1

LG055

6

131414

3

134513

3

CR3212-4-07

Purchased No

Each

949.0000

16

CR3212-4-07

**

DAS
41
9-89

15-10-21

CHERRY RIVET

Location

Loc Qty

Loc Code

CCK003

300

m133031

300

CCK004

500

m133064

500

ST320

149

m132249

149

16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval																																																									
Description Work Order Deviation				Disposition				Completed By																																																									
								Lead hand / Supervisor Approval Verification																																																									
								QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

Picklist Print

Wednesday, September 02, 2015 9:13:39 AM

Page 3

Work Order ID: 135564

135564

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 8/12/2015

Required Date: 8/12/2015

Start Qty: 1.00

Required Qty: 1.00

MS21920-24

Purchased

No

Each

82.0000

4

DAS

41

9-89

16-1-5

MS21920-24

Clamp

Location

Loc Qty

Loc Code

FG

2

117998

2

LG050

80

120079

1

m129317

7

m132045

32

m133031

40

4

DS305-1 x 2 B 139753
per ECU

DAS

41

9-89

16-1-7

2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

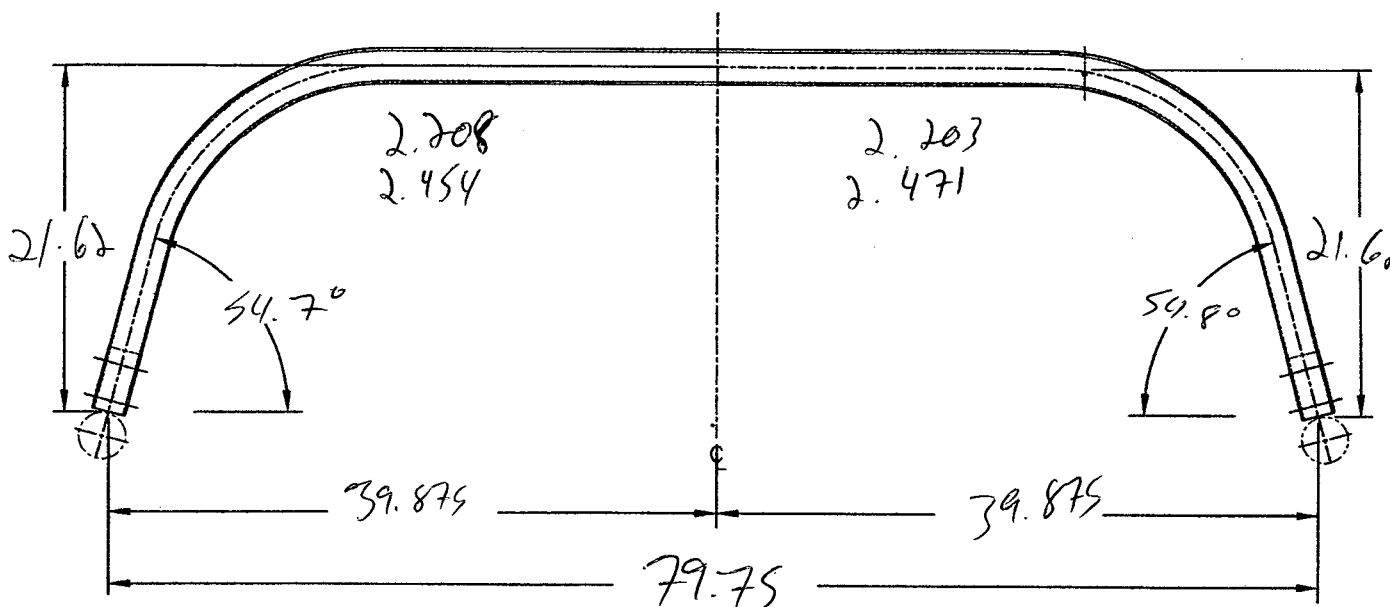
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By																																																									
								Lead hand / Supervisor Approval Verification																																																									
								QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

DART AEROSPACE LTD		Work Order:	
Description: Crosstube Fwd, with Step		Part Number:	D119-796-141
Inspection Dwg: D119-796-141 Rev: F H		Page 1 of 1	

Required Dimension	Min	Max
Height	21.490	21.750
1/2 Span	39.820	40.080
Angle	54°	57°
Total Span	79.640	80.160
Bending Passes	8	--
Crushing	--	6.8%



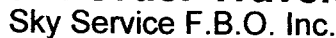
	Side A	Side B
Bending Passes	8	8
Crushing	5.3%	5.7%
Comments		

DAS

47

QC15 Inspection	9-89
Date	15-10-06

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	



SKYM002-1 REV 4 Mar/14



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PC30083**

Purchase Order Date 10/9/2015

PO Print Date 10/13/2015

Page Number 2 of 6

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905-678-5636

Ship To Contact
Ship To Phone

Ship Via: Delivered
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Total: \$101.67

3	135562	D119-796-141 CROSSTUBE	10/13/2015	1.00	\$101.67	\$101.67
---	--------	---------------------------	------------	------	----------	----------

Yes

10/13/2015

AS ABOVE

Line Total: \$101.67

4	135563	D119-796-141 CROSSTUBE	10/13/2015	1.00	\$101.67	\$101.67
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Yes

10/13/2015

AS ABOVE

Line Total: \$101.67

5	135564	D119-796-141 CROSSTUBE	10/13/2015	1.00	\$101.67	\$101.67
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Yes

10/13/2015

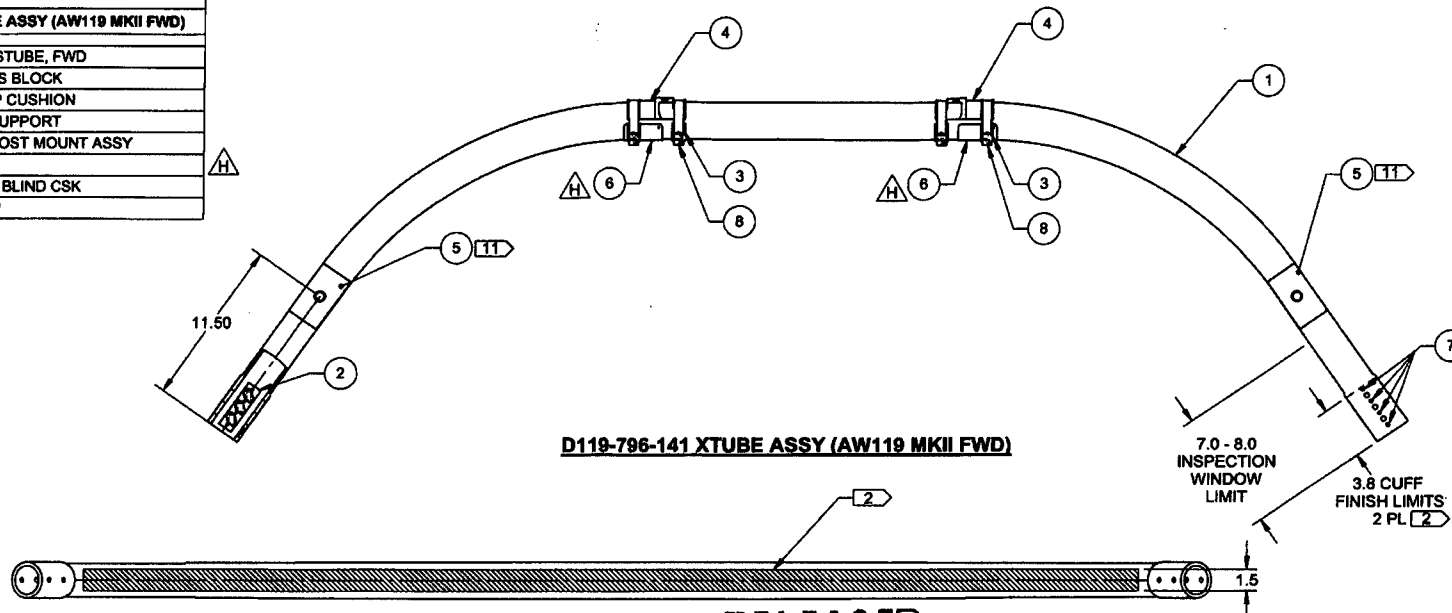
AS ABOVE

10/13/13
SL

Note:

10/13/2015

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-141	XTUBE ASSY (AW119 MKII FWD)
1	1	D119-796-141BND	CROSSTUBE, FWD
2	4	D2873-043	RADIUS BLOCK
3	4	D5123-3	CLAMP CUSHION
4	2	D5124-1	FWD SUPPORT
5	2	D5152-041	FWD POST MOUNT ASSY
6	2	D5305-1	SHIM
7	16	CR3212-4-08	RIVET, BLIND CSK
8	4	MS21920-24	CLAMP

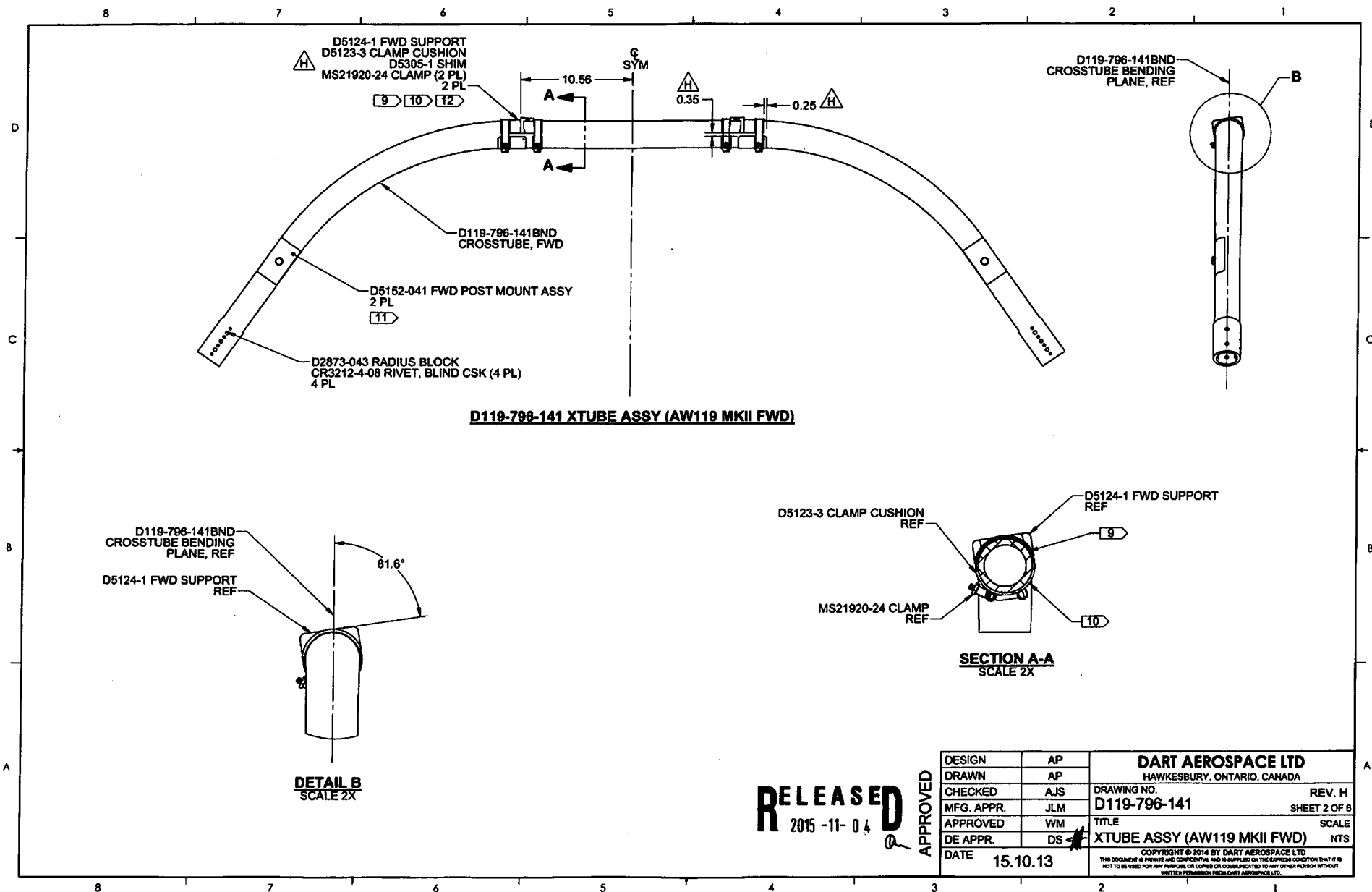


RELEASED
2015-11-04
E2W 15-142

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: APPLY MATTE CLEAR COAT PER QSI 005 4.2
MASK D5124-1 FWD SUPPORTS, D5305-1 SHIMS AS WELL AS UNDERSIDE OF CROSSTUBE AS SHOWN (B3-1, HATCHED AREA),
PAINT OUTSIDE PER DART QSI 005 4.2 AFTER APPLYING CLEAR COAT
DO NOT APPLY FINISH (PAINT OR CLEAR COAT) TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-141" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 18.54 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS.
DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5124-1 FWD SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. APPLY A 0.1 MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5124-1 FWD SUPPORTS AND INSTALL AT AN 8.4° OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL THE MS21920-24 CLAMPS AND D5123-3 CLAMP CUSHIONS WHILE WET.
- 10) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY. THE NUT IS FACING AFT AND HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-041 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. INSTALL D5152-041 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. LOCATE D5152-041 USING TOOL DT10089.
- 12) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5305-1 SHIM WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. INSTALL D5305-1 SHIM WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. USE ADDITIONAL TEMPORARY MS21920-24 CLAMP TO APPLY CLAMPING PRESSURE FOR 72 HOURS.

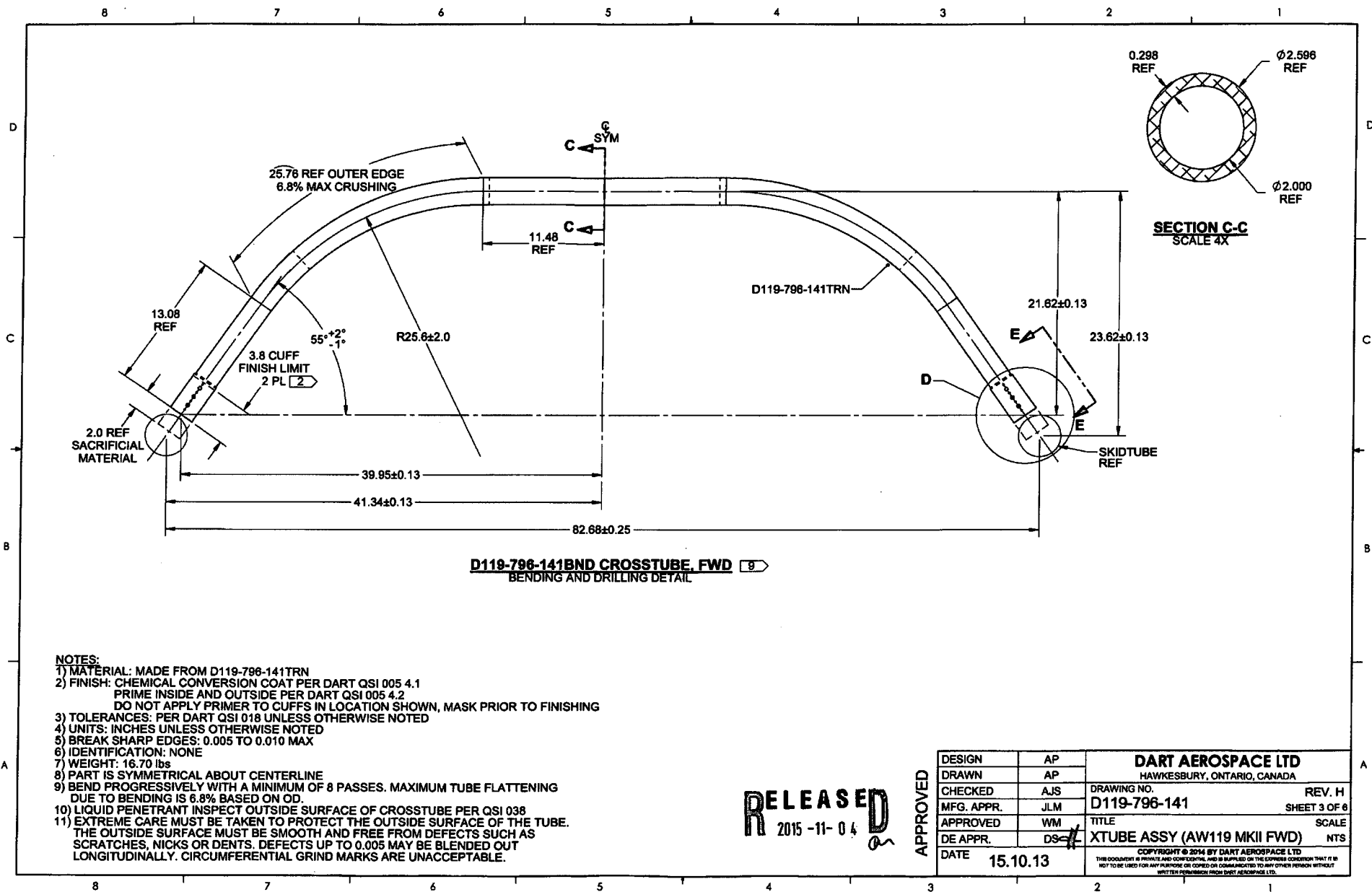
H	ADD D5305-1 SHIM, D8024-103 WAS D8005-103, D5124-1 NOW INSTALLED ON PRIMER	AP	15.10.13
G	FINISHING ORDER ADJUSTED, CR3212-4-08 WAS -07, CUFF DIA TOLERANCE INCREASED TO +/- 0.005	AP	15.04.24
F	REMOVED PRIME/PAINT ON CUFFS, 2.516 WAS 2.500 (CB-5)	AP	15.02.03
E	D5152-041 FWD STEP POST ASSY WAS D5150-1 STEP POST, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER, ANGLE (B7-2) DIMENSIONED FROM NEW DATUM	DB	15.01.15
D	ADD D5150-1 STEP POST (2X), MOVED INSPECTION WINDOW DETAIL TO SHEET 7, MODIFIED NOTES ON SHT 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WERE CR3212-4-09, 7.5 DEG CUFF ANGLE OFFSET REMOVED (SHT 3), CUFF DIAMETER ON D119-796-141 TRN REDUCED TO 2.500, ADDED INSPECTION WINDOW (B7-3), ADDED SHT 4	AP	14.10.23
B	ADDED D2873-043 RADIUS BLOCK, CR3212-4-09 RIVETS, ADDED SKIDTUBE REFERENCE FOR LOCATING CUFF HOLES, RE-ORGANIZED NOTES AND REMOVED REDUNDANT INFORMATION	AP	14.09.02
A	NEW ISSUE	AP	14.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 1 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

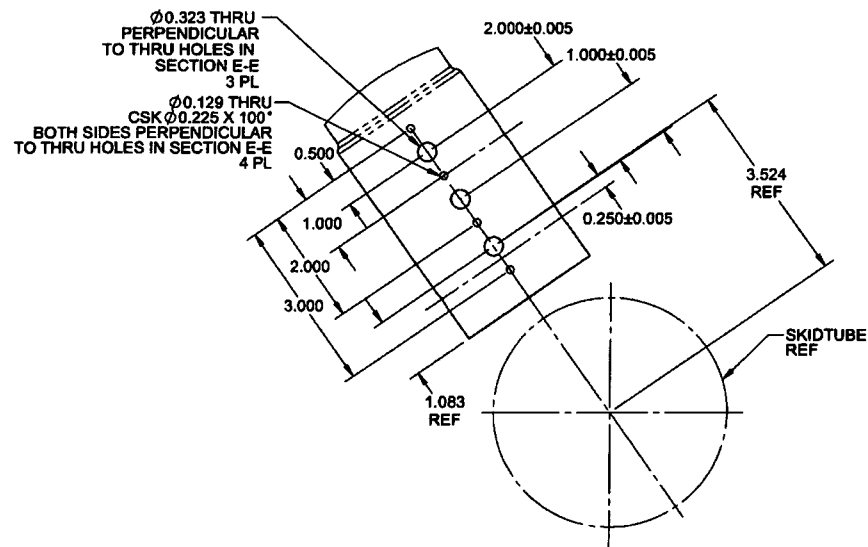


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2015-11-04

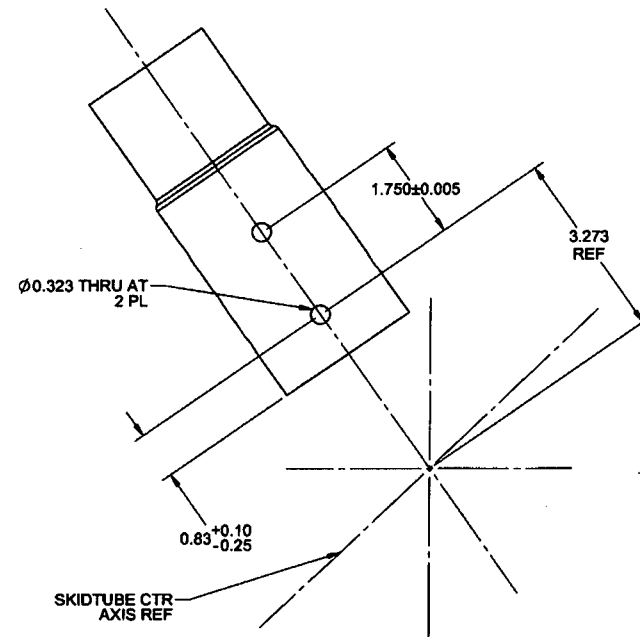
APPROVED

DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 2 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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VIEW D
SCALE 4X

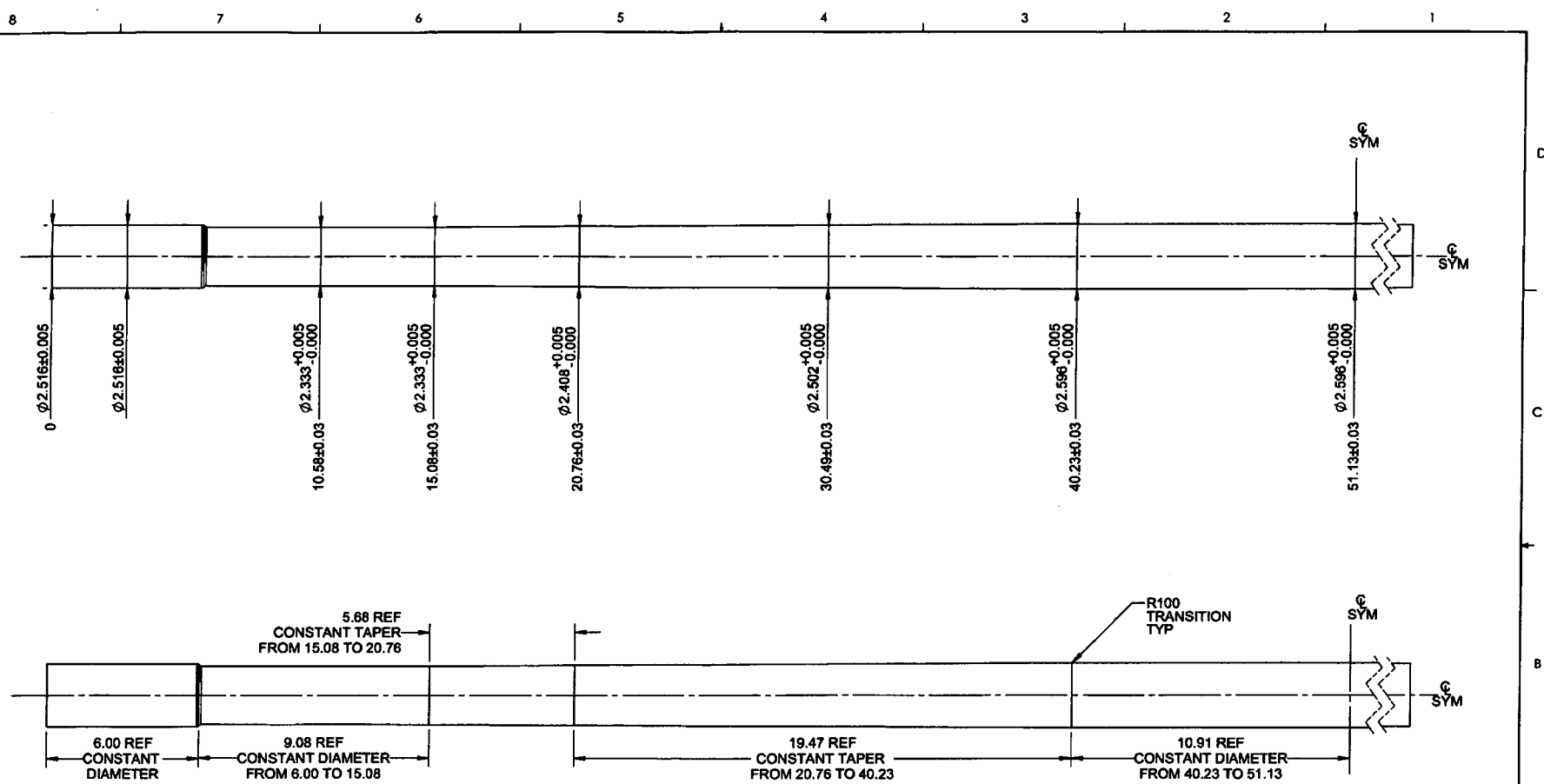


VIEW E-E
SCALE 2X

RELEASED
2015-11-04

APPROVED

DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 4 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD	
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D119-796-141TRN CROSSTUBE, FWD

- NOTES:**
- 1) MATERIAL: MANUFACTURE FROM D6024-103 (PREFERRED) OR D6005-103
FINISHED LENGTH = 102.26 ± 0.020 (BEFORE BENDING/TRIMMING)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 16.70 lbs
 - 8) PART IS SYMMETRICAL ABOUT CENTERLINE

RELEASED
2015-11-04
APPROVED

DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 5 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS-1	XTUBE ASSY (AW119 MKII FWD)	NTS
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